

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 06-298253

(43)Date of publication of application : 25.10.1994

(51)Int.Cl.

B65D 23/10  
// B29C 49/48

(21)Application number : 05-084827

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(22)Date of filing : 12.04.1993

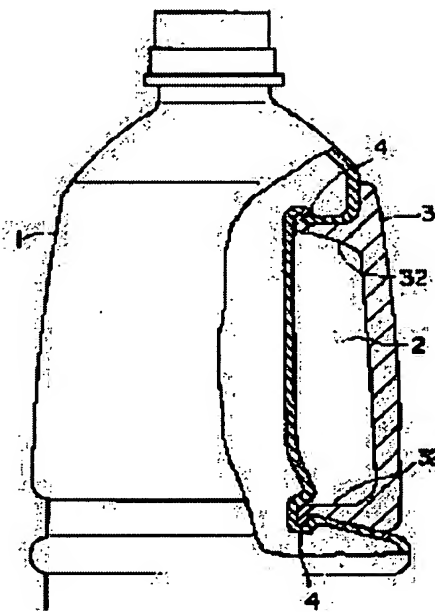
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## (54) POLYESTER BOTTLE WITH HANDLE

## (57)Abstract:

PURPOSE: To attach a handle of polyester to the bottle properly and securely and prevent the bottle from becoming extremely thin at the wall or from rupturing during the forming process by crystallizing the fastening part of the handle at least at the part corresponding to the part of the handle at which it is put in contact with the bottle.

CONSTITUTION: The bottle relates to a bottle of polyester provided with a separately formed handle 3 of polyester at a recession 2 in the bottle body 1 formed for attaching the handle. Fastening parts 4 of the handle 3 at least at the parts corresponding to the parts of the handle at which it is put in contact with the bottle are crystallized at a crystallinity of 10% or more. In attaching the handle 3 to the bottle body 1 by blowing molding, by preliminarily crystallizing the fastening parts 4 of the handle 3, which undergo fusion attachment, the fastening parts 4 are rendered difficult of softening. Hence fusion attachment of the fastening parts to the wall of the bottle does not easily occur; it does not occur for the wall to be overstretched to extreme thinness; and the bottle is prevented from rupturing during the forming. Moreover, the fastening parts 4 are little liable to deformation or dislocation so that the handle can be attached properly and securely.



## LEGAL STATUS

[Date of request for examination]

03.04.2000

[Date of sending the examiner's decision of rejection] 30.08.2001

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

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[Claim(s)]

[Claim 1] The bottle made from polyester with a hand hold characterized by crystallizing the stop section corresponding to the part on a knob which touches a bottle at least, and making the crystallinity 10% or more in the bottle made from polyester which comes to attach the hand hold made of polyester resin of another object in the crevice for hand hold mounting formed in the body of a bottle.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the plastics bottle which attached the hand hold of another object in the bottle with it and which carried out blow molding.

[0002]

[Description of the Prior Art] Since handling will become disadvantage if it enlarges, a plastics blow bottle is used for the hand hold of another object with the body of a bottle, attaching. In order to attach a hand hold in the body of a bottle, the hand hold is beforehand set in the body molding die of a bottle, and while blowing a fluid into the heated parison, carrying out blow molding of this and forming in a bottle, the method of equipping with a hand hold, as the stop section on a knob is wrapped in by the bottle wall surface is put in practical use. This hand hold has been fabricated by the injection-molding method in the moldability or the price side using synthetic resin, such as polypropylene and polyethylene.

[0003] On the other hand, when the same construction material is required in many cases and a plastics bottle is polyester resin, as for the plastics bottle and the hand hold, the hand hold is also wanted to be polyester resin rather than the field of processing of trash and playback in recent years.

[0004]

[Problem(s) to be Solved by the Invention] It replaces with hand holds, such as polypropylene and polyethylene. The hand hold made from polyester however, the bottle made from mounting beam polyester. The stop section corresponding to the part which touches a bottle deforms, or the hand hold made from polyester is set in the molding die. While blowing the fluid into the heated parison, carrying out blow molding of this and forming in a bottle, as the stop section on a knob was wrapped in on the bottle wall surface, when equipping with and fabricating a hand hold, the bottle under shaping exploded and the problem that it was difficult to fabricate in a bottle arose.

[0005]

[Means for Solving the Problem] the bottle made from polyester with a hand hold with which this invention solved the above-mentioned technical problem -- it is going to provide -- it is a thing and it is the bottle made from polyester with a hand hold characterize by for the summary to crystallize the stop section corresponding to the part on a knob which touches a bottle at least, and to make the crystallinity 10% or more in the bottle made from polyester which comes to attach the hand hold made of polyester resin of another object in the crevice for hand hold mounting formed in the body of a bottle.

[0006] The manufacture also becomes easy while the stop section corresponding to the part which touches the bottle of the hand hold made from polyester by making crystallinity of the stop section on a knob 10% or more does not deform.

[0007] Hereafter, this invention is explained based on an accompanying drawing. A part is cut and the lacked front view in which drawing 1 shows an example of the bottle made from polyester with a hand hold of this invention, the perspective view in which drawing 2 shows an example on a knob, and drawing 3 are the cross-section front views explaining the condition in the middle of manufacturing the bottle made from polyester with a hand hold of this invention.

[0008] It is the bottle made from polyester with a hand hold characterized by for this invention crystallizing the stop section 4 corresponding to the part of a hand hold 3 which touches a bottle at

least in the bottle made from polyester which comes to attach the hand hold 3 made of polyester resin of another object in the crevice 2 for hand hold mounting formed in the body 1 of a bottle as shown in drawing 1 - drawing 2 , and making the crystallinity 10% or more.

[0009] In the example of drawing 2 , a hand hold 3 consists of the grip section 31 and the attachment section 32 which projected in the longitudinal direction from the ends of the grip section 31, and is making horseshoe-shaped as a whole. The upper part and the stop section 4 which starts caudad are formed at the head of the attachment section 32. If there is at least 10% or more of degree of crystallinity of this stop section 4 front face, it is effective in the bottle made from polyester with which the hand hold made from polyester was exact, and it was equipped certainly being obtained, and when it is less than 10%, effectiveness decreases.

[0010] In order to manufacture this bottle made from polyester with a hand hold As shown in drawing 3 , the hand hold 3 made from polyester beforehand manufactured with injection molding is set to the body molding die 5 of a bottle so that the stop section 4 may project in metal mold 5 inner surface. By blowing and carrying out blow molding of the fluid to molding temperature and the parison 6 generally heated at 95-115 degrees C, and forming in the body of a bottle, while shaping advances, as the bottle wall surface 61 slides on the stop section 4 on a knob, when it wraps it in, it is equipped with a hand hold.

[0011] Under the present circumstances, in the case of the hand hold 3 made from conventional polyester, the stop section 4 is a non-crystallized state, and the front face of the stop section 4 in contact with the bottle wall surface 61 in the middle of shaping and this becomes more than a glass transition point (near 70 degree C), and softens. For this reason, it is thought that the stop section corresponding to the part to which it becomes very thin by fault drawing, the bottle under shaping produces a burst, or the bottle wall surface 61 which both are going to produce welding, slipping of the bottle wall surface 61 tends to stop, and it is going to prolong further touches the bottle of the hand hold made from polyester further in near the welding section deforms.

[0012] Therefore, without becoming very thin by fault drawing, since it is hard coming to soften the part of the hand hold which produces the above-mentioned welding, i.e., by crystalizing the stop section 4 on a knob beforehand at least, and hard coming to generate welding with the bottle wall surface 61, the burst of the bottle under shaping can also be prevented and it is thought by that which deformation and a gap of the stop section 4 also like further and which is twisted that exact and positive wearing can be carried out.

[0013] If there is at least 10% or more of crystallinity of stop section 4 front face also in this case, it is effective in the bottle wall surface 61 not becoming very thin, or the bottle under shaping not exploding, and when it is less than 10%, effectiveness will decrease. Moreover, you may make it milk by making it crystallize to about 40%.

[0014] Beforehand, as an approach of crystallizing the stop section 4 of the hand hold 3 made from polyester, it can attain easily by heating the stop section 4 by the infrared heater, the burner of a propane, etc.

[0015]

[Effect of the Invention] In the bottle made from polyester which comes to attach the hand hold made of polyester resin of another object in the crevice for hand hold mounting which formed this invention in the body of a bottle Since it is the bottle made from polyester with a hand hold characterized by crystallizing the stop section corresponding to the part on a knob which touches a bottle at least, and making the crystallinity 10% or more While the bottle made from polyester with which the hand hold made from polyester was exact, and it was equipped certainly is obtained Since it is effective in a bottle wall surface not becoming very thin, or the bottle under shaping not exploding and the body of a bottle and a hand hold consist of polyester further, there is no need for separation also in the case of abolition and reuse, and it becomes easy at it.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The front view showing an example of the bottle made from polyester with a hand hold of this invention which turned off in part and was lacked.

[Drawing 2] The perspective view showing an example on a knob.

[Drawing 3] The cross-section front view explaining the condition in the middle of manufacturing the bottle made from polyester with a hand hold of this invention.

[Description of Notations]

- 1 Body of Bottle
- 2 Crevice for Hand Hold Mounting
- 3 Hand Hold made of Polyester Resin
- 4 Stop Section

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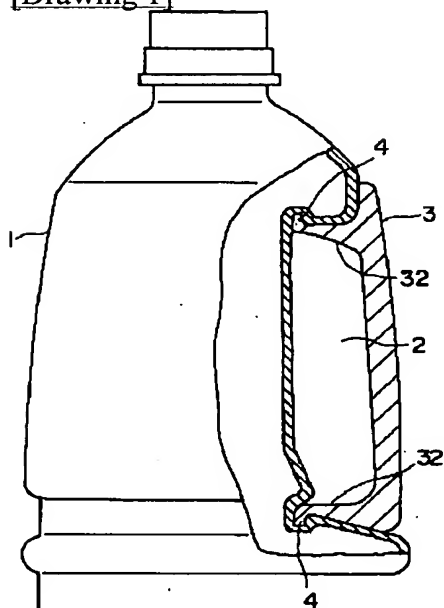
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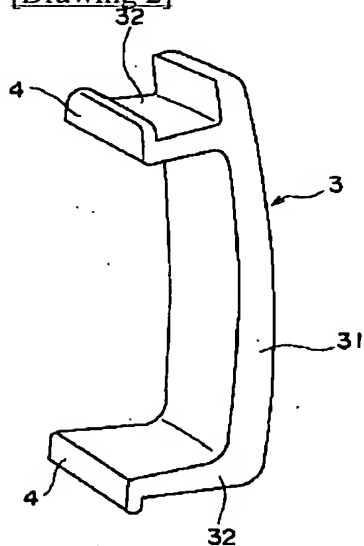
DRAWINGS

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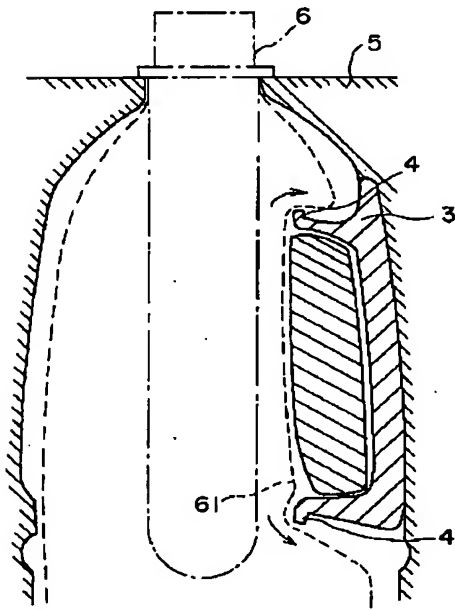
[Drawing 1]



[Drawing 2]



[Drawing 3]



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[Translation done.]



(19)日本国特許庁 (J P)

(12) 公 開 特 許 公 報 (A)

(11)特許出願公開番号

特開平6-298253

(43)公開日 平成 6 年(1994)10月25日

(51)Int.Cl.<sup>5</sup>

識別記号

庁内整理番号

F I

技術表示箇所

B 6 5 D 23/10

Z 7403-3E

// B 2 9 C 49/48

7619-4F

審査請求 未請求 請求項の数 1 O L (全 3 頁)

(21)出願番号 特願平5-84827

(22)出願日 平成 5 年(1993) 4 月12日

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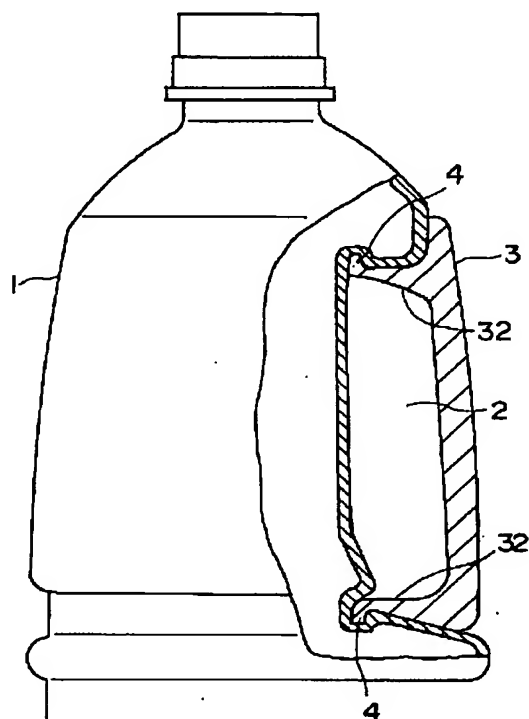
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(54)【発明の名称】 取手付ポリエステル製ボトル

(57)【要約】

【構成】 ボトル本体 1 に形成した取手取付用凹部 2 に、別体のポリエステル樹脂製取手 3 を取りつけてなるポリエステル製ボトルにおいて、取手 3 の、少なくともボトルに接する部分に対応する係止部 4 を結晶化させ、その結晶化度を 10 % 以上にすることを特徴とする取手付ポリエステル製ボトル。

【効果】 ポリエステル製取手が正確で確実に装着されたポリエステル製ボトルが得られるとともに、ボトル壁面 6 1 が極めて薄くなったり、成形中のボトルが破裂することがない。



## 【特許請求の範囲】

【請求項1】 ボトル本体に形成した取手取付用凹部に、別体のポリエステル樹脂製取手を取りつけてなるポリエステル製ボトルにおいて、取手の、少なくともボトルに接する部分に対応する係止部を結晶化させ、その結晶化度を10%以上にすることを特徴とする取手付ポリエステル製ボトル。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】 本発明は、ボトルにそれとは別体の取手を取り付けたブロー成形したプラスチックボトルに関する。

## 【0002】

【従来の技術】 プラスチックブローボトルは、大型化すると取扱いが不便になるのでボトル本体とは別体の取手を取り付けて使用されるようになってきている。取手をボトル本体に取付けるためには、例えば取手をあらかじめボトル本体成形用金型内にセットしておき、加熱されたパリソンに流体を吹込んでこれをブロー成形してボトルに形成するとともに、ボトル壁面により取手の係止部を包み込むようにして取手を装着する方法が実用化されている。この取手は、成形性や価格面でポリプロピレンやポリエチレン等の合成樹脂を用いて射出成形法にて形成されてきた。

【0003】 一方、近年廃棄物の処理及び再生の面よりプラスチックボトルと取手は、同一材質が要求されることが多く、プラスチックボトルがポリエステル樹脂の場合、取手もポリエステル樹脂であることが望まれている。

## 【0004】

【発明が解決しようとする課題】 しかしながら、ポリプロピレンやポリエチレン等の取手に代えてポリエステル製取手を取付けたポリエステル製ボトルは、ボトルに接する部分に対応する係止部が変形したり、あるいはポリエステル製取手を成形用金型内にセットしておき、加熱されたパリソンに流体を吹込んでこれをブロー成形してボトルに形成するとともにボトル壁面に取手の係止部を包み込むようにして取手を装着して成形する際、成形中のボトルが破裂してしまい、ボトルに成形することが困難であるという問題が生じた。

## 【0005】

【課題を解決するための手段】 本発明は、上記課題を解決した取手付ポリエステル製ボトルを提供せんとするものであり、その要旨はボトル本体に形成した取手取付用凹部に、別体のポリエステル樹脂製取手を取りつけてなるポリエステル製ボトルにおいて、取手の、少なくともボトルに接する部分に対応する係止部を結晶化させ、その結晶化度を10%以上にすることを特徴とする取手付ポリエステル製ボトルである。

【0006】 取手の係止部の結晶化度を10%以上にす

ることにより、ポリエステル製取手のボトルに接する部分に対応する係止部が変形しないとともに、その製造も容易になる。

【0007】 以下、本発明を添付図面に基づいて説明する。図1は本発明の取手付ポリエステル製ボトルの一例を示す一部切り欠いた正面図、図2は取手の一例を示す斜視図、図3は本発明の取手付ポリエステル製ボトルを製造する途中の状態を説明する断面正面図である。

【0008】 本発明は図1～図2に示すとおりボトル本体1に形成した取手取付用凹部2に、別体のポリエステル樹脂製取手3を取りつけてなるポリエステル製ボトルにおいて、取手3の、少なくともボトルに接する部分に対応する係止部4を結晶化させ、その結晶化度を10%以上にすることを特徴とする取手付ポリエステル製ボトルである。

【0009】 図2の例では取手3は握り部31とその握り部31の両端から横方向に突出した嵌着部32とからなり、全体としてコの字状をなしている。嵌着部32の先端には上方及び下方に立ち上がる係止部4を設けてある。この係止部4表面の結晶化度は少なくとも10%以上あればポリエステル製取手が正確で確実に装着されたポリエステル製ボトルが得られる効果があり、10%未満の時は効果が減少する。

【0010】 この取手付ポリエステル製ボトルを製造するためには、図3に示すようにボトル本体成形用金型5に、あらかじめ射出成形により製造しておいたポリエステル製取手3を係止部4が金型5内面に突出するようにセットしておき、成形温度、一般には95～115℃に加熱した、パリソン6に流体を吹き込んでブロー成形してボトル本体に形成することにより、成形が進むとともにボトル壁面61が取手の係止部4を滑るようにして包み込むことにより、取手が装着される。

【0011】 この際、従来のポリエステル製の取手3の場合には係止部4が未結晶状態であり、成形途中のボトル壁面61とこれに接触する係止部4の表面がガラス転移点（70℃付近）以上となって軟化する。このため両者は融着を生じボトル壁面61の滑りが停止し、さらに延びようとするボトル壁面61が融着部の付近において過延伸により極めて薄くなったり、成形中のボトルが破裂を生じたり、さらにはポリエステル製取手のボトルに接する部分に対応する係止部が変形するものと考えられる。

【0012】 従って、上記融着を生ずる取手の部分、即ち少なくとも取手の係止部4を予め結晶化することにより軟化しにくくなり、ボトル壁面61との融着が生じにくくなるから過延伸により極めて薄くなることもなく、成形中のボトルの破裂も防止することができ、さらに係止部4の変形やずれもすくなくので正確で確実な装着が行えると考えられる。

【0013】 この場合も係止部4表面の結晶化度は少な

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くとも 10% 以上あれば、ボトル壁面 61 が極めて薄くなったり、成形中のボトルが破裂することがないという効果があり、10% 未満の時は効果が減少する。また、40% 程度まで結晶化させることにより白化させてもよい。

【0014】予め、ポリエステル製の取手 3 の係止部 4 を結晶化させる方法としては、赤外線ヒーターやプロパンのバーナー等で係止部 4 を加熱することにより容易に達成できる。

【0015】

【発明の効果】本発明は、ボトル本体に形成した取手取付用凹部に、別体のポリエステル樹脂製取手を取りつけてなるポリエステル製ボトルにおいて、取手の、少なくともボトルに接する部分に対応する係止部を結晶化させ、その結晶化度を 10% 以上にすることを特徴とする取手付ポリエステル製ボトルであるので、ポリエステル製取手が正確で確実に装着されたポリエステル製ボトル\*

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\* が得られるとともに、ボトル壁面が極めて薄くなったり、成形中のボトルが破裂することがないという効果があり、さらにボトル本体及び取手ともポリエステルで構成されるため、廃棄及び再利用の際にも分離の必要がなく容易となる。

【図面の簡単な説明】

【図 1】本発明の取手付ポリエステル製ボトルの一例を示す一部切り欠いた正面図。

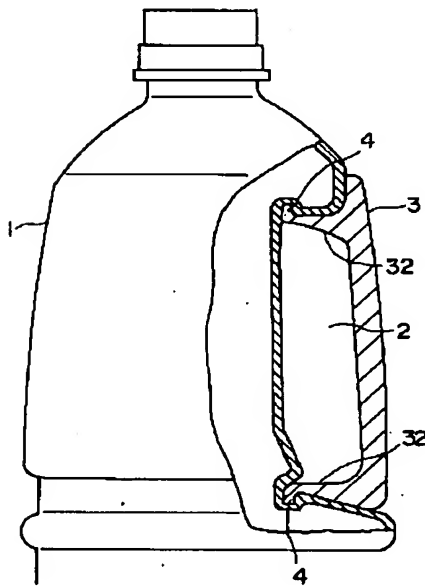
【図 2】取手の一例を示す斜視図。

10 【図 3】本発明の取手付ポリエステル製ボトルを製造する途中の状態を説明する断面正面図。

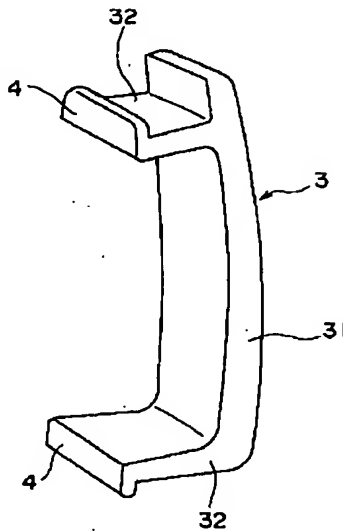
【符号の説明】

- 1 ボトル本体
- 2 取手取付用凹部
- 3 ポリエステル樹脂製取手
- 4 係止部

【図 1】



【図 2】



【図 3】

